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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,109	12/15/2003	Jianxin Wang	063170.6722	5512

5073 7590 09/10/2007

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EXAMINER	
LE, MIRANDA	

ART UNIT	PAPER NUMBER
2167	

NOTIFICATION DATE	DELIVERY MODE
09/10/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/737,109	WANG, JIANXIN	
	Examiner	Art Unit	
	Miranda Le	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/19/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/11/07 has been entered.

This communication is responsive to Amendment, filed 06/11/07.

Claims 1-34 are pending in this application. This action is made non-Final.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 07/19/07 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless:
>
> (e) the invention was described in
>
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or
>
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only

if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 34 is rejected under 35 U.S.C. 102(e) as being anticipated by Spilo et al. (US Patent No. 6,208,999).

Spilo anticipated independent claim 1 by the following:

As per claim 34, Spilo teaches a serverless backup method comprising:

opening a file system root directory *(i.e. The file system of the invention includes file identification information with file data, thereby enhancing prospects for file recovery in the event of file system damage. Moreover, the entire directory structure for the storage device, including all subdirectories, is maintained in a single data structure. If this data structure is damaged, it can be completely recreated from information recovered from other areas of the storage device, col. 4, lines 38-46);*

parsing the file system root directory for allocation tables of each file and finding attributes of each file *(Each directory entry within the directory structure contains the entire pathname to a data file. Accordingly, a hierarchical structure, such as a FAT system, is simulated by the invention. In a preferred embodiment, the invention is compatible with and is used in conjunction with a hierarchical file system, such as FAT or NTFS, col. 4, line 56-65)*

examining the attributes of each file and determining whether a file is resident or non resident *(i.e. the disk can be scanned to find missing files, col. 4, line 66 to col. 5, line 11));*

backing up entire attributes of a file if it is determined that the file is resident *(i.e. File allocation information can be dynamically maintained and can be reconstructed in cases of loss or damage by scanning the disk for blocks having identification and sequence numbers, col. 4, line 66 to col. 5, line 11); and*

backing up attributes and data blocks belonging to the file if it is determined the file is not resident *(i.e. Only a small portion of each data file block is devoted to the information used to recreate the file and directory structures, col. 5, lines 12-25).*

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-4, 13-16, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over St. Pierre et al. (US Patent No. 6,366,986), in view of Ofek et al. (US Patent No. 6,385,706).

As per claim 1, St. Pierre teaches a serverless backup system for backing up information on a network including one or more servers *(See Fig. 22),* comprising:

a storage system *(i.e. Storage System, See Fig. 22)* of storing information to be backed up and restored, the storage system operable to:

a backup storage system *(i.e. Mirror Backup Storage System, See Fig. 22)* for backing up the information, the backup storage system coupled to the storage system and to one or more servers *(i.e. Reference 223, Fig. 22)* via a network, wherein the information being backed up is

transferred directly *(See Reference 224, Fig. 22)* form the storage system to the backup storage without going through the one or more servers and information being restored is transferred directly *(i.e. The mirror backup storage system 222 may be coupled directly to the storage system 221, col. 26, lines 17-36)* from the backup storage system to the storage system without going through the one or more servers *(i.e. A mirroring backup storage system 222 may also be provided. In this example, the mirroring backup storage system may be a slave Symmetrix system. The mirror backup storage system 222 may be coupled directly to the storage system 221, or may be located at a remote facility. When located at a remote facility, the mirroring backup storage system may be connected over a telephone line periodically (e.g., once per day) for receiving backup information from the storage system 221, col. 26, lines 17-36).*

St. Pierre does not teach:

receive the information from a plurality of workstations and

store the information received from the plurality of workstations.

Ofek teaches:

receive the information *(i.e. In the embodiment of FIG. 8, the host computers 80 are coupled to the enterprise storage 89 through a network or directly to primary storage nodes 82. A primary storage node is a memory device that can store significant amount of data for use by the host 80. For example, a Symmetrix system, such as the one described above with respect to FIG. 7, may be used as a primary storage node, although this is not intended as limiting, col. 14, lines 29-37)* from a plurality of workstations *(i.e. work station, col. 41, lines 19-28);* and

store the information *(i.e. In the embodiment of FIG. 8, the host computers 80 are coupled to the enterprise storage 89 through a network or directly to primary storage nodes 82.*

A primary storage node is a memory device that can store significant amount of data for use by the host 80. For example, a Symmetrix system, such as the one described above with respect to FIG. 7, may be used as a primary storage node, although this is not intended as limiting, col. 14, lines 29-37) received from the plurality of workstations *(i.e. work station, col. 41, lines 19-28).*

It would have been obvious to one of ordinary skill of the art having the teaching of St. Pierre and Ofek at the time the invention was made to modify the system of St. Pierre to include the limitations as taught by Ofek. One of ordinary skill in the art would be motivated to make this combination in order to store significant amount of data for use by the host (col. 41, lines 19-28) in view of Ofek, as doing so would give the added benefit of having a secondary storage device coupled to a plurality of the primary storage devices, and the secondary storage device being configured to receive backup data from each of the host computers (col. 9, lines 7-15) as taught by Ofek.

As to claims 13, 25, St. Pierre teaches a serverless backup method for backing up information on a network including one or more servers *(See Fig. 22)*, comprising:

providing a storage system *(i.e. Storage System, See Fig. 22)* for storing information to be backed up and restored, the storage system operable to:

providing a backup storage system *(i.e. Mirror Backup Storage System, See Fig. 22)* for backing up the information, the backup storage system coupled to the storage system and to one or more servers via a network;

backing up the information by transferring the information directly *(See Reference 224, Fig. 22)* from the storage system to the backup storage system without going through the one or

more servers *(i.e. A mirroring backup storage system 222 may also be provided. In this example, the mirroring backup storage system may be a slave Symmetrix system. The mirror backup storage system 222 may be coupled directly to the storage system 221, or may be located at a remote facility. When located at a remote facility, the mirroring backup storage system may be connected over a telephone line periodically (e.g., once per day) for receiving backup information from the storage system 221, col. 26, lines 17-36)*; and

restoring information by transferring information directly from the backup storage system to the storage system without going through the one or more servers *(i.e. A mirroring backup storage system 222 may also be provided. In this example, the mirroring backup storage system may be a slave Symmetrix system. The mirror backup storage system 222 may be coupled directly to the storage system 221, or may be located at a remote facility. When located at a remote facility, the mirroring backup storage system may be connected over a telephone line periodically (e.g., once per day) for receiving backup information from the storage system 221, col. 26, lines 17-36).*

St. Pierre does not teach:

receive the information form a plurality of workstations; and

store the information received form the plurality of workstations.

Ofek teaches:

receive the information *(i.e. In the embodiment of FIG. 8, the host computers 80 are coupled to the enterprise storage 89 through a network or directly to primary storage nodes 82. A primary storage node is a memory device that can store significant amount of data for use by the host 80. For example, a Symmetrix system, such as the one described above with respect to*

FIG. 7, may be used as a primary storage node, although this is not intended as limiting, col. 14, lines 29-37) from a plurality of workstations *(i.e. work station, col. 41, lines 19-28);* and

store the information *(i.e. In the embodiment of FIG. 8, the host computers 80 are coupled to the enterprise storage 89 through a network or directly to primary storage nodes 82. A primary storage node is a memory device that can store significant amount of data for use by the host 80. For example, a Symmetrix system, such as the one described above with respect to FIG. 7, may be used as a primary storage node, although this is not intended as limiting, col. 14, lines 29-37)* received from the plurality of workstations *(i.e. work station, col. 41, lines 19-28).*

It would have been obvious to one of ordinary skill of the art having the teaching of St. Pierre and Ofek at the time the invention was made to modify the system of St. Pierre to include the limitations as taught by Ofek. One of ordinary skill in the art would be motivated to make this combination in order to store significant amount of data for use by the host (col. 41, lines 19-28) in view of Ofek, as doing so would give the added benefit of a secondary storage device, coupled to a plurality of the primary storage devices, the secondary storage device being configured to receive backup data from each of the host computers (col. 9, lines 7-15) as taught by Ofek.

As to claims 2, 14, Ofek teaches the backup storage system comprises a tape storage system *(i.e. A backup storage system 54 is also attached to the network 56. The backup storage system 54 includes a backup storage device (which may be disk drives, tape storage or any other storage mechanism), together with a system for placing data into the storage and recovering the data from that storage, col. 9, lines 15-20).*

As to claim 3, 15, Ofek teaches the backup storage system comprises a disk storage system *(i.e. A backup storage system 54 is also attached to the network 56. The backup storage system 54 includes a backup storage device (which may be disk drives, tape storage or any other storage mechanism), together with a system for placing data into the storage and recovering the data from that storage, col. 9, lines 15-20).*

As to claim 4, 16, St. Pierre teaches the network comprises a storage area network *(See Fig. 22).*

7. Claims 5, 17, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over St. Pierre et al. (US Patent No. 6,366,986), in view of Ofek et al. (US Patent No. 6,385,706), and further in view of Tamura (US Patent No. 6,728,848).

As to claims 5, 17, 26, St. Pierre, Ofek do not teach the information is transferred between the backup storage system and the storage system using Extended Copy command.

Tamura teaches this limitation (i.e. E-copy command, col. 2, lines 13-24).

It would have been obvious to one of ordinary skill of the art having the teaching of St. Pierre, Ofek and Tamura at the time the invention was made to modify the system of St. Pierre, Ofek to include the limitations as taught by Tamura. One of ordinary skill in the art would be motivated to make this combination in order to back-up the information indicated in the E-copy command to the back-up device in view of Tamura (Abstract), as doing so would give the added benefit of achieving an improved backup technique which further decentralizes the back-up of a

storage system on a SAN to, for example, the storage system itself as taught by Tamura (col. 2, lines 7-10).

8. Claims 6, 7, 18, 19, 27, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over St. Pierre et al. (US Patent No. 6,366,986), in view of Ofek et al. (US Patent No. 6,385,706), and further in view of Clifton et al. (US Patent No. 6,081,875).

As to claims 6, 18, 27, St. Pierre, Ofek do not teach prior to transferring information directly from the storage system to the backup storage system, a snapshot of the storage system is taken.

Clifton teaches this limitation *(i.e. such time as they are needed to construct the snapshot database image to be stored to BSU 150, col. 3, line 61 to col. 4, line 13).*

It would have been obvious to one of ordinary skill of the art having the teaching of St. Pierre, Ofek and Clifton at the time the invention was made to modify the system of St. Pierre, Ofek to include the limitations as taught by Clifton. One of ordinary skill in the art would be motivated to make this combination in order to construct the snapshot database image in view of Clifton (col. 3, line 61 to col. 4, line 13), as doing so would give the added benefit of allowing users unrestricted access to the system during the backup process while creating a snapshot backup image on tape that does not require reconstruction as taught by Clifton (col. 2, lines 17-21).

As to claims 7, 19, 28, Clifton teaches a period of write inactivity to the storage system is waited for prior to taking the snapshot *(col. 3, line 61 to col. 4, line 13).*

9. Claims 8, 9, 20, 21, 29, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over St. Pierre et al. (US Patent No. 6,366,986), in view of Ofek et al. (US Patent No. 6,385,706), in view of Clifton et al. (US Patent No. 6,081,875), and further in view of Gold et al. (US Patent No. 6,785,786).

As to claims 8, 20, 29, St. Pierre, Ofek, Clifton do not teach the period of write inactivity is a predefined period of time.

Gold teaches this limitation *(i.e. if the time is set to 5 seconds, col. 5, lines 55-67).*

It would have been obvious to one of ordinary skill of the art having the teaching of St. Pierre, Ofek, Clifton, and Gold at the time the invention was made to modify the system of St. Pierre, Ofek to include the limitations as taught by Gold. One of ordinary skill in the art would be motivated to make this combination in order to determine when a file is safe to backup in view of Gold (col. 5, lines 55-67), as doing so would give the added benefit of performing a data restore operation that can be enacted using data stored in primary storage, without needing to find and install any particular backup tape (col. 2, lines 9-14) as taught by Gold.

As to claims 9, 21, 30, although Gold does not teach the predefined period of time is three seconds, Gold does teache *"if the time is set to 5 seconds" (col. 5, lines 55-67).*

Thus, it would have been obvious to one ordinary skill of the art having the teaching of Gold at the time the invention was made to set the predefined period of time is three seconds in order to determine when a file is safe to backup as taught by Gold (col. 5, lines 55-67), as doing so would give the added benefit of performing a data restore operation that can be enacted using

data stored in primary storage, without needing to find and install any particular backup tape (col. 2, lines 9-14) as taught by Gold.

10. Claims 10-12, 22-24, 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over St. Pierre et al. (US Patent No. 6,366,986), in view of Ofek et al. (US Patent No. 6,385,706), in view of Clifton et al. (US Patent No. 6,081,875), and further in view of Gold et al. (US Patent No. 6,785,786).

As to claims 10, 22, 31, St. Pierre, Ofek, Clifton do not teach if the period of write inactivity does not occur by time a timeout period has expired, the transfer fails.

However, Blam teaches a timeout period *(col. 4, line 65 to col. 5, line 27).*

It would have been obvious to one of ordinary skill of the art having the teaching of St. Pierre, Ofek, Clifton, and Blam at the time the invention was made to modify the system of St. Pierre, Ofek to include the limitations as taught by Blam. One of ordinary skill in the art would be motivated to make this combination in order to access and boot from the next backup server in the network (col. 5, lines 15-27) in view of Blam, as doing so would give the added benefit of performing a method for adjusting time-outs and failover intervals according to the requirements of different systems (col. 1, line 65 to col. 2, line 3) as taught by Blam.

As to claims 11, 23, 32, Blam teaches the timeout period is a predefined period of time *(col. 4, line 65 to col. 5, line 27).*

As to claims 12, 24, 33, Blam does not teach the predefined period of time is 80 seconds.

However, Blam teaches *"a method of adjusting failover intervals" (col. 5, lines 59-67).*

It would have been obvious to one ordinary skill of the art having the teaching of Blam at the time the invention was made to use the method of Blame to adjust the predefined period of time is 80 seconds in order to access and boot from the next backup server in the network as taught by Blam (col. 5, lines 15-27), as doing so would give the added benefit of a method for adjusting time-outs and failover intervals according to the requirements of different systems (col. 1, line 65 to col. 2, line 3) as taught by Blam.

Response to Arguments

11. Applicant's arguments regarding the prior arts do not teach with respect to claims 1-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (571) 272-4112. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham, can be reached on (571) 272-7079. The fax number to this Art Unit is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Miranda Le
September 03, 2007